

# Canine Mammary Carcinoma

## What is a canine mammary carcinoma?

Tumors of the mammary gland develop when the cells associated with the mammary gland become cancerous and grow uncontrollably. In dogs, approximately 50% of mammary tumors are malignant (have the potential to spread to other areas of the body). The other half are considered to be benign. The most common type of malignant mammary tumor is a carcinoma.

## What are the clinical signs of a mammary tumor?

This tumor is often identified during a routine physical exam, or you may notice it at home. They usually manifest as a swelling of the mammary gland or the nearby tissues/skin. They can be firm or soft.

## How is a mammary tumor diagnosed?

Biopsy is required to diagnose a mammary gland tumor. Prior to making definitive treatment options, full staging with an abdominal ultrasound, chest x-rays, and evaluation of the local lymph nodes are recommended to look for any spread of disease.

## How is a mammary tumor treated?

Treatment of mammary tumors is aimed at both local control (removing the primary tumor and minimizing the likelihood of local recurrence) and systemic control (delaying the onset of spread of disease). Each tumor should be removed with a wide band of normal tissue around the tumor to result in the best possible outcome. If this type of surgery is not possible, a combination of surgery and radiation therapy may be discussed.

Based on the type of tumor, and several factors evaluated on biopsy, chemotherapy may be recommended in addition to surgical removal. Clear evidence describing the effect of chemotherapy on mammary tumor recurrence, survival, and spread of disease is lacking. However, based on somewhat limited reports in the literature and responses in other types of carcinomas, injectable carboplatin is often recommended. Carboplatin is given at 3-week intervals for a total of four to six treatments. In addition to chemotherapy, we recommend Piroxicam, a non-steroidal that has been shown to have anti-cancer effects. Piroxicam can be used either with chemotherapy or, if chemotherapy is declined, as a single agent.

## What is the prognosis for a mammary tumor?

Dogs with benign mammary tumors do very well after surgery often having a normal life-expectancy. Dogs with aggressive mammary tumors, even with treatment, have a much poorer prognosis.

## Why do mammary tumors develop?

Although there is no one reason mammary tumors develop, we know of several factors that can predispose a dog to their formation. The most important factors are age, hormonal exposure, breed, and obesity. Malignant tumors are very rare in dogs less than 5 years of age. The risk continues to increase with age. Female dogs are at an increased risk of developing mammary tumors later in life if they are spayed after the start of their estrus cycles, and that risk increases with each cycle up to about 4 years of age. Purebred poodles, Chihuahuas, Dachshunds, Yorkshire terriers, Maltese, and cocker spaniels are more likely to develop mammary tumors. In addition, overweight dogs have a higher risk of mammary tumor development.